

What is claimed is:

1. A fuel injector having a fuel inlet, a fuel outlet, and a fuel passageway extending from the fuel inlet to the fuel outlet along a longitudinal axis, the fuel injector comprising:

a body;

a needle slidably disposed within the body; and

5 a seat disposed at the fuel outlet, the seat having a plurality of passages, each of the plurality of passages having a central axis having an angle of inclination relative to the longitudinal axis.

Sub 2. The fuel injector according to claim 1, wherein at least one of the plurality of passages is at a different distance from the longitudinal axis than the other passages.

3. The fuel injector according to claim 1, wherein at least one of the plurality of passages is at a same distance from the longitudinal axis as the other passages.

4. The fuel injector according to claim 1, wherein at least one of the plurality of passages has a same cross-section as the other passages.

5. The fuel injector according to claim 1, wherein at least one of the plurality of passages has a different cross-section than the other passages.

6. The fuel injector according to claim 1, wherein the angle of inclination for at least one of the plurality of passages is the same as the other passages.

7. The fuel injector according to claim 1, wherein the angle of inclination for at least one of the plurality of passages is different than the other passages.

Sub 8. A spray pattern generated by a fuel injector having a fuel inlet, a fuel outlet, a fuel passageway extending from the fuel inlet to the fuel outlet along a longitudinal axis, a body, a

needle slidingly disposed within the body, a seat disposed at the fuel outlet, the seat having a plurality of passages, each of the plurality of passages having a central axis having an angle of inclination relative to the longitudinal axis, the spray pattern comprising:

a fan shape; and
at least one plume adjacent the fan shape.

9. The spray pattern according to claim 8, wherein the fan shape corresponds to the number of inclined passages.

10. The spray pattern according to claim 8, wherein the fan shape corresponds to a cross-section of each of the plurality of inclined passages.

11. The spray pattern according to claim 8, wherein the fan shape corresponds to the angle of inclination of each of the plurality of inclined passages.

12. The spray pattern according to claim 8, wherein the fan shape corresponds to a distance of each of the plurality of inclined passages from the longitudinal axis.

13. A method of generating a spray pattern from a fuel injector in a direct injection application, the fuel injector having a body, a longitudinal axis, a needle slidingly disposed within the body, and a seat disposed at the fuel outlet, the method comprising the steps of:

providing the seat with a plurality of passages, each of the plurality of passages having a central axis having an angle of inclination relative to the longitudinal axis; and
supplying fuel to the fuel injector so that a spray pattern is formed.

14. The method according to claim 13, wherein the spray pattern has a fan shape, the fan shape corresponds to the number of inclined passages.

15. The method according to claim 13, wherein the spray pattern has a fan shape, the fan shape corresponds to a cross-section of each of the plurality of inclined passages.

16. The method according to claim 13, wherein the spray pattern has a fan shape, the fan shape corresponds to the angle of inclination of each of the plurality of inclined passages.

17. The method according to claim 13, wherein the spray pattern has a fan shape, the fan shape corresponds to a distance of each of the plurality of inclined passages from the longitudinal axis.

18. The method according to claim 13, the spray pattern has a fan shape, the fan shaped spray pattern has a plurality of plumes.

19. The method according to claim 13, wherein at least one of the plurality of passages is at a different distance from the longitudinal axis than the other passages.

20. The method according to claim 13, wherein at least one of the plurality of passages is at a same distance from the longitudinal axis as the other passages.

21. The method according to claim 13, wherein at least one of the plurality of passages has a same cross-section as the other passages.

22. The method according to claim 13, wherein at least one of the plurality of passages has a different cross-section than the other passages.

23. The method according to claim 13, wherein the angle of inclination for at least one of the plurality of passages is the same as the other passages.

24. The method according to claim 13, wherein the angle of inclination for at least one of the plurality of passages is different than the other passages.